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Legislations against Injurious Insects and Plant Diseases.

THE amount of money which is lost every year in this country by the ravages of insects and of fungus plagues is so enormous that any attempt to state the figures in hundreds of millions of dollars would sound like an exaggeration. We are constantly reminded, however, of these losses, and within a week past two of the bulletins received from state experiment stations contain statements which will help us in forming some estimate of their extent. The September bulletin from Michigan asserts that the loss in that state this year to the Oat crop alone by the single disease known as smut exceeds $1,000,000. Professor J. B. Smith, the Entomologist of the New Jersey Experiment Station, in the report for the year, just received, asserts that insects exact a tax of fully ten per cent. on the farm products of that state, and this tax is all taken directly from profits. Dr. Shimer, whose estimate has been approved by the highest authorities, has stated that in one year the corn and grain crop of the single state of Illinois suffered to the extent of $73,000,000 from the chinch-bug, and Professor Comstock estimated that the ravages of the cotton-worm in years when it was generally prevalent caused the loss of $30,000,000. If the agricultural products of the United States approach $4,000,000,000 annually, and one-tenth of this is destroyed by insects, the addition of the loss caused by fungus diseases would easily swell the figures to a total destruction of five hundred millions per annum. Whether half a billion dollars, or, say, a million and a half of money every day, is over the truth or under it as an estimate of this loss, the fact remains that the amount of the destruction is quite beyond the grasp of the ordinary imagination.

The increased knowledge of the history and habits of destructive insects and of fungi which cause plant diseases is the most striking feature in the progress which has been made in agriculture and horticulture during the last twenty years. We can all remember when these losses were endured as a matter of course, and with scarcely an effort to avert them, while now there is an organized corps of skilled investigators in every state who are studying and experimenting to discover the best practical means of defeating these enemies, and some knowledge of the latest and most approved fungicides and insecticides, and some familiarity with the best machinery for applying them, is a necessary equipment for the ordinary farmer and gardener. But these enemies come in such countless multitudes, and their operations spread over so large a territory, that no effective stand against them can be made without concert of action. It is useless for one man to rid his Plum-trees of the black knot or his Apple-orchards of the tent-caterpillar if his neighbor allows both the insect and the fungus to breed on trees in an adjacent lot. It seems reasonable, therefore, that some legal means should be devised of compelling land-holders to keep their premises free from certain kinds of insect and fungus pests.

The state of Michigan was visited with some severe criticism a few years ago for enacting a law to suppress the peach yellows, and an attempt was made to overthrow a similar law in New York state by persons who contended that the yellows was not a specific disease which was communicable. Time, however, has vindicated the wisdom of this law, and now not only has Michigan a new and more effective law, but Delaware, New York and California have passed enactments which look in the same direction. In New Jersey the experiment station authorities have the power to destroy crops which are infested with new and dangerous fungi—a law which was passed as a result of the investigation of the cranberry-gall fungus two years ago. In California and Washington there is an inspector of fruit pests, who has power to quarantine fruit packages, trees, plants, cuttings and cions which are believed to be infested with insects or disease germs liable to spread contagion, and this quarantine is good not only against foreign countries, but against the other states of the Union. This is the first organized effort to exclude contagious plant diseases from a given territory, and if it is honestly executed it will be watched with great interest. It is worth noting here that many nurserymen in the east argue that the prime purpose of this law is to prevent competition in the nursery business. Beyond these laws there have been sporadic efforts to exterminate some particular pest, like the attack in Massachusetts upon the Gypsy-moth, or the efforts of the General Government to afford some protection against the grasshoppers in the west. But, after all, it is plain that, as compared with the magnitude of the evils, the efforts made by state governments for the protection of the property of their citizens have been slight and desultory.

In a few of the states, laws to prevent the spread of noxious weeds are in force, and, of course, laws against insects are based on the same principle. And why should not the protection of plant life be as justifiable a subject for legislation as the protection of animal life? The state will spend hundreds of thousands of dollars to stamp out pleuro-pneumonia from its herds, and yet the pecuniary loss and the discomfort to society from this disease are no greater than what happens from the destruction of the vineyards by the phylloxera or black rot. To be effective, however, legislation must be based on the best available information, and it should be general. It is not to be assumed that the members of our state legislatures are sufficiently well acquainted with the habits of insects or the life-history of fungi to devise the best means of attacking them. But there are in almost every state persons who are skilled in economic entomology and in mycology, and their knowledge and experience are available. There is an association of economic entomologists who represent every part of the United States. There is an association of officers of the experiment stations and the agricultural colleges, whose business it is to look after the interests of agriculture and of horticulture. This certainly is a subject to be

taken up by some body of national importance so that a code of laws, which are general in their character and which would be applicable to the needs of all the states, could be devised. Bills should be drawn which would be comprehensive enough to include the most dangerous contagious diseases of plants and the most destructive of insects, and they should be framed to fit the special needs of different states. There is little doubt that such bills could be pushed through to enactment if the association of station officers and, through their influence, the various state boards of agriculture would urge their importance upon our law-makers. Only by some strong movement of this sort can we hope for a code of laws under which a hopeful contest can be waged against the enemies of our crops. The enforcement of this legislation might cost considerable to begin with, but the expense incurred would be small compared with the enormous drain upon our resources from the unchecked, or only partially restrained, ravages of these pests.

An American gentleman, writing from England, notes two things in particular which help the people there to get more for their money in the way of recreation than we do here. One of these is the enormous amount of common land so easily accessible from the great cities, and the other the fine roads for bicycling, a form of recreation in universal vogue. In his native city, Cincinnati, this gentleman remembers that it was almost impossible for the boys to have a game of base-ball, and the few places then available are now covered with buildings. He says: "None of Cincinnati public parks are ever used for games, and I don't think many of our western cities allow such use of their parks. Here nearly all the parks have immense spaces reserved for cricket, tennis and the like, and the London vestries are continually acquiring new land for recreation purposes."

While Cincinnati is exceptionally backward among large western cities in providing proper park facilities, the charge of not permitting a sufficient use of the parks for games would certainly not hold against Chicago, where the people enjoy the parks to a remarkable extent. Here in New York and Brooklyn, as well as in Boston and other Atlantic cities, ample facilities for popular recreation are provided in the parks. In Boston the open-air gymnasiums for men and women on the Charles-bank are such gratifying successes that a number of others are to be established in various sections of the city. The Earl of Meath reported to the London park authorities most enthusiastically on these institutions, and, in consequence, the example of Boston has been followed by the establishment of fourteen gymnasiums on a similar plan in the British metropolis.

Although England is very fortunately possessed of ample open-air spaces near her great centres of population and makes appreciative use of them, neither in beauty of landscape design, tastefulness of maintenance, or adaptability to their purpose do the English public parks, as a rule, approach the great parks of our own cities. But there is great room for the growth of an intelligent sentiment in favor of public parks in this country. Many of our great cities are alive to the advantages of spacious park-areas; but even here, the oldest, the most famous and the most useful, because the most beautiful, parks are in constant danger of confiscation or perversion to some special purpose, which would destroy their highest value as recreation-grounds for the entire population. On the other hand, the rapidly growing cities of moderate size, which in a decade or two more will rank as large centres, have not been alert to make provision for the future by taking for park purposes attractive suburban sites. Such sites may now be obtained for a trifle in comparison with what they will cost when the absolute necessity actually arises. And then it will too often happen, when the need does become urgent, that the favorable sites are built over or in some way ruined for park purposes.

Overland in the Cayuga Country.—III.

FROM Farmer Village an old "angling" road runs over the country to Ovid, a quiet village midway between the two lakes, Cayuga and Seneca, and which commands a view of both. This was in early times a famous Wheat country, and much of the staple is still grown, with as great yields as ever. But the old line of farming is not paying well, and the younger men are branching out into specialties. In Ovid is perhaps the most typical example which I have found of the success resulting from persistent and thoughtful effort in a minor branch of agriculture, all the more remarkable from the fact that the man has labored without instruction in a comparatively isolated inland town. This man is a berry-grower. Seven years ago Mr. Banker had one and a half acres of land, a very poor house and few of the conveniences of living, and was $200 in debt. He now owns sixteen and a half acres, is laying up money, has built a new house and furnished it well throughout, and his children are going away to school. This he has made legitimately from the land, with no capital and no help. The neighboring farmers offer to sell him land, but he wisely concludes that sixteen and a half acres is enough, and will not buy more. I have never met a happier and more contented farmer. "I have just enough land to keep me busy, and not enough to work me to death," he remarked, "and I make a good living and have all the fun I want. No other business has any temptation for me." The largest part of Mr. Banker's business, probably, is in raspberries. These he sells both fresh and dried. He has a home-made evaporator, in which he manufactures about a ton of dried product annually. Among black raspberries he finds Gregg best for selling upon the daily market, and Ohio best for drying. Among the red Raspberries he still grows the Red Antwerp, with Early Richmond for the first markets. Mr. Banker makes a strong point of close-planting of the Raspberry, and rightly, too, I think. His rows for all varieties are seven feet apart, but the plants stand only two feet apart in the row. This thick setting brings earlier berries and gives more bearing surface per acre, and as he thins the growing canes severely and gives excellent cultivation, the plan succeeds admirably. But his strongest point in favor of this close planting is the smothering of grass and weeds, and the consequent great saving in hand-labor. He seldom hoes his plantations after the first year, and they remain clean. He declares that if he had learned this simple thing early in his experience, he would have been much better off to-day. It is needless to add that Mr. Banker believes in thorough work. In 1890 he bought five acres of waste bush-land near the village at a cost of $300. This was tile-drained and thoroughly improved, and was set to black Raspberries in the spring of 1891. The improvements and plants cost $200. This year he sold plants to the amount of $175, and he estimated that the crop upon the vines would easily clear off the remainder of the $500. Judging from the remarkable crop the bushes were carrying, I am convinced that he is right.

It is not far from Ovid to Romulus, and at this hamlet we came upon the Niagara Grape at its best. It is impossible to estimate the number of acres planted in this Grape from East Varick on Cayuga Lake to Kendaia near Seneca Lake. Mr. O. F. Reed, at Romulus, has the management of 590 acres of Niagara vineyards. This immense area is divided into three portions, each owned by a different company, but belonging to practically the same parties. The King Niagara Vineyard Company owns 150 acres, the Cayuga Lake Vineyard Company, 205 acres, and the Seneca Lake Vineyard Company, 235 acres, and these represent three solid blocks of the areas mentioned. These vineyards are all young, the oldest having been set but four or five years. The labor problem, therefore, has not yet presented itself in its full force, although Mr. Reed is now considering plans for securing sufficient pickers when needed. A crop of 70 tons is expected from one vineyard this year, and 140 tons from another. When the vineyards are eight years old the crop is expected to be from 2,500 to 3,000 tons annually. "No, we shall not try to sell it all as green fruit," he replied, in answer to a question. "We may make some wine, but we are looking more especially to unfermented grape-juice as an outlet for our crops." He then explained the process of making this article, as follows: Grind the grapes coarsely, taking care not to crush the seeds. This should be done in the afternoon. Place the material in tubs. The next morning, filter through paper, and heat nearly to the boiling-point and remove scum. Filter again, heat to nearly boiling-point and bottle. All those great vineyards, like that of Moore's Diamond, at Farmer Village, are trained upon the Kniffen system, and the tying is done almost entirely by

women. For this training two wires are used, and in these vineyards the lower wire is three feet from the ground and the upper one five and a half feet.

About fifteen miles from Geneva the horticultural region was left behind, and we came at once into general farming on the high land well up between the lakes. The whole country is admirably adapted to fruit of various kinds, and the time cannot be far away when the farmers will believe that fruit-growing is more profitable in this region than hay and grain. The country becomes much lower northward, and rolls away on all sides in mighty billows, until lost in the blue hills beyond the lakes. Near Geneva, beyond the foot of Seneca Lake, is the farm where John Johnston did the first tile-draining done in America. The old house still stands as he left it, with low ceilings, quaint "cubby-holes" and curious old latches. The farm is now owned and managed by Mr. Charles R. Mellen, a young man of spirit and intelligence, who makes the most of his opportunities. "The old farm still outdoes any of its neighbors in productiveness," he remarked, "and I attribute the fact to the good old tile-drains and to the careful management which the land received in its early days. That field over yonder we always expect shall give us forty bushels of wheat to the acre, and last year it gave us an average of forty-two bushels and a peck." Adjoining the old Johnston farm is Rose Hill, the finest farm homestead between New York and Chicago; this is the estimate of a committee of appraisers to award damages entailed by a new railroad which cuts off one corner of it. Originally it contained over 1,100 acres; it was settled early in the century by a Virginian by the name of Rose. The present house and appurtenances are palatial, and of a type very rarely seen in American country-seats.

Cornell University. *L. H. Bailey.*

The Old Southern Country-seat.

THE house in which a man lives goes far toward disclosing not only his tastes and intellectual development, but also his habits and modes of living. It has always seemed to me that the old southern homestead of the better class was peculiarly characteristic of our people in the halcyon days before the war. A thousand things told of boundless and tireless hospitality. The sagging "big gate" on the public road, one of whose posts, at least, was often a living tree, while extremely hard to shut, would open almost of its own accord. Besides, it had a great habit of hanging wide open as if inviting every passer-by to enter and make himself at home. And the chances were that the yard gate had the same habit. Inside, the shaded walk was broad and ample, as if many visitors were expected to walk abreast between the files of stately Box-trees up to the mansion, whose porch and hall and rooms and all their belongings were of the same generous dimensions. The kitchen fireplace was huge enough to cook for an army. An abundance of roomy arm-chairs, made of native wood and bottomed with native bark, offered comfortable nesting-places, so comfortable that it seems as if chair-making is now one of the lost arts.

The architecture of the building depended, of course, on the era of its erection. If early in the century, sharp roofs and dormer-windows were apt to prevail. Later, just previous to the war, hip-roofs abounded. Whatever the style, the rooms were almost sure to be large and square, and there were plenty of them. Eighteen feet square was a favorite size, though many were larger and few smaller. The house was invariably white, with green blinds; with their accessories of green trees and dense shade, these colors were beautiful and appropriate beyond all others. Red kitchens, smoke-houses, carriage-houses and other outbuildings lent picturesqueness to the scene. The palings, generally of large ornamented posts and small pickets, were also invariably white. Hedges in the way of enclosures were practically unknown, while ornamental hedges of Box were common. Cedar was also used for this purpose, though to a much less extent on account of the great care necessary to keep it trim. Flowers were nearly all grown in the vegetable-gardens some distance to the rear of the house, but there were always some Roses along the front walk, and often a bush of running Roses trained on one side of the porch. But little attention was paid to pot-plants, the Geranium taking precedence among the few flowers grown. In most yards no sowing of grass-seed was necessary, the native grasses, if protected from weeds, giving usually an excellent sward. Protected by the fallen tree-leaves purposely left in autumn, it remained green from the uncovering in early March till the trees again cast down its winter robe of russet-brown. Few Oak-trees were located in the yard, or at least to the front of the house, on account of their injury to the grass, while under most of the other trees planted for shade or ornament it grew even more luxuriantly than in the open.

Riding was almost universally practiced by both sexes, and the horse-block from which the ladies of the family reached their saddles was a fixture in every homestead. Sometimes this "block" was a granite cube rudely dressed by the farm mason, or may be a lichened boulder which nature had placed just in the right spot or very near it. Almost every place had its pigeon-cote; some of these were elaborate and ornamental, housing many hundred birds. The squabs were occasionally killed, but generally the pigeons were allowed to multiply undisturbed, much to the annoyance of the overseer, who was constantly complaining of their attacks on newly planted corn and peas. Few places had wells, or, having them, used their waters. Everybody preferred spring-water, which was considered better and more wholesome. Among the hill-districts these springs were often wonderfully bold and beautiful, their sparkling waters pausing a moment in the natural basin of solid rock, and then dashing off between mossy roots and lichened stones down a glen all greenness and shade. That these springs were all the way from a hundred yards to half a mile from the house made little difference as things then were. There was always a swarm of nimble-footed pickaninnies ready for this or any other errand. Indeed, some such light service was necessary to keep them out of mischief, and to drive cows, mind gaps, blow fires akindle, and keep chickens out of the garden left enough idlers to give a world of trouble about the kitchen and back-yard. "I use daily a five-hundred-dollar candle-stand, a four-hundred-dollar washstand, and a towel-rack nearly as valuable," was the mild and oft-repeated joke of an old gentleman who was served by a swarm of these sable urchins.

But all these things belong to a past whose remoteness cannot be measured by years, because they are a part of a different era, a different order. The chances are that the old homestead has long since gone to decay. All but a pitiful corner of the spacious garden has been turned into a corn-field; browsing stock have played havoc with the grass and shrubbery of the yard; the shorter-lived shade-trees have long ago died, and others have grown scraggy or unkempt; the long, well-kept rows of negro quarters have succumbed to time, and the laborers are scattered in fragile huts so as to be convenient to the fields they tend.

The "Great House" itself has shared in these changes. Thirty years of wind and weather have toned down its once cheerful white and green into melancholy dinginess. The roof, despite its shroud of moss and lichens, is so frayed and unsound that one wonders how it contrives to keep out the rain. The former occupants and their fortunes have undergone no less a change, and, if they remain under the old roof-tree, maintain scarcely a shadow of their former state and hospitality.

There is, of course, no lack of snug and thriving homes all through the south, but few of these grand old places, too cumbersome for modern needs, remain, and the old-time southern country-seat is fast becoming a memory.

Kittrell, N. C. *O. W. Blacknall.*

"Shongum."—I.

THE Shawangunk Range is a minor branch of the great Appalachian chain. Its most northern point, near Kingston, Ulster County, New York, divides the valley of the Wallkill from the great Rondout valley, and thence, extending south-west, attains in some places a height of 1,800 to 2,000 feet. The Erie Railroad crosses it at Port Jervis, and afterward it is lost in the Alleghanies. Its elevation is so inconsiderable in comparison with the lordly Catskills, which look down upon it across the wide and fertile farm-lands of the valleys, that it was left unnoticed and unknown for many years after the higher mountains had been well explored by summer tourists. But, aside from the historical interest connecting it with the early history of the Dutch settlements along the Hudson, this region is worth consideration for its own sake. Its easy accessibility by rail and river makes the little world thus elevated above the sea-level a ready refuge from the summer heat, and its system of lakes and streams and cascades and forests affords picturesque delights to the artist and unending studies to the botanist.

When the mighty forces of primeval nature uplifted these masses of white sandstone and quartz conglomerate it was done with so steady a hand that the level strata were hardly anywhere tilted; and they stood in parallel lines with gaps between, one mountain wall pushed a little past the next and commanding it—in military phrase—en échelon. Then came the long win-

ter, when the glaciers plowed deep valleys, and on either side piled its broken buttresses and angles against it in the passage, filling its gaps, leveling the tops of its cliffs, smoothing and shaping the spaces inside its outer walls, scooping the abrupt valleys and wearing deep holes in the conglomerate, where now repose the tiny lakes that feed its romantic streams. But its highest points were left unmoved, in level firmness, square and compact as if these were immense forts built for the wars of Titans. And since then, though the storm king at times holds high carnival here, the wear and tear of the elements have been propitious rather than otherwise. The disintegration of the conglomerate gives elements of fertility, and also, when under water, hardens to an imperishable cement, while the sandstone is harder than granite and far more enduring.

Its location gives a wide outlook, for the range is comparatively narrow and isolated, and there are points from whence the view is bounded to the south and east only by the Highlands of North River, the bay at Newburgh being visible, with Storm King frowning above it; or one looks north-east to see the Berkshire Hills of Massachusetts, and north over the levels to where the Green Mountains of Vermont lie in a blue undulating line beneath the farthest clouds. To the west rises the abrupt ascent of the Catskills from the plain, far enough distant for the most exquisite atmospheric effects, and the graceful sweep of these curves toward the south-west opens ever-changing glories of light and color, as the sunshine bathes them or the showers sweep over them.

Our first personal knowledge of the Shawangunk Mountains (commonly called "Shongum") was on a still afternoon, after a morning that had been full of enchanting surprises of light and shadow among the picturesque highlands of the Hudson. A little jaded with travel we had looked over the shoulders of our stage-driver, and without much interest, at the distant uplands, which we were told contained our point of destination, but with which the present direction of our big slow-moving horses seemed to have little to do.

For an hour our road lay through undulating farm-lands in the rich Wallkill valley, and then suddenly turning to the north we drove down a long hill into a deep dell, and straight at the heart of the mountain whose thousand feet of stone seemed to rise like a wall before us, stretching away in unbroken line for miles on either hand. From the depth of the dell where we had entered a grove of Chestnuts, for some distance up this height, the débris piled against it in huge rocks and broken soil, is covered with a forest-growth, hundreds of feet above the trees.

Certainly it required faith in modern engineering to believe anything but eagles' wings would raise us to the top of this perpendicular; but after going down till it reached the lowest point at the foot of this majestic pile, our road began timidly to take hold of its skirts, and climb the way along its side, giving us views of great beauty over the wide valley we had left. Then we reached a break in the wall, and turned sharply away into a pass that was once an Indian trail, and affords the only natural access to the interior of this range for many miles. Here in a few moments a heavy rain struck us, and our horses labored up the steep ascents, straining their great flanks and standing with their legs gathered under them while they took breath a moment on the shelves cut in the road for that purpose, or dragged the coach with the wheels all locked down the steep descents that seemed aimed at the centre of the earth.

When the shower had passed we found ourselves in a fertile region abounding in a great variety of wild growth. One could think that Flora, hiding in these fastnesses, had amused herself in sowing all manner of seeds to make a garden of the wilderness. The Chestnut crowded the Oak, and the red-tipped leaves of the Sassafras peeped between. The Sumach made a lusty growth, and held its green heads high in rocky spaces, vaunting a promise of future brilliancy. Above all towered the Pines, which form the chief glory of the upper plateau to which we had at length ascended. The great rocks amid which our road curved were covered with brown lichens of curious form, while every hollow, every broken place and coign of vantage had its tuft of Fern or its bed of mosses. In the open places bordering the roadway we saw the deep green stiff leaves of the Laurel (Kalmia latifolia) bristling against baby Oaks and Chestnuts, whose faces, wet by the late shower, were lifted to us in a kiss of welcome; or the sun glinted from the waxen foliage of the Rhododendron, both R. maximum and R. Catawbiense growing freely here, and just out of blossom. The fragrant breath of the Spice-bush came to us from some hidden nook, and the beautiful Clematis vitalba threw out its pearls of buds or its feathery blossoms to glorify the rough Raspberry and Barberry bushes lining our way. In other places there were plantations of Golden-rod contrasting with the brown blooms of the Bindweed (Calystegia Sepium) made a thicket of the broken banks whereon were grown in profusion the Blueberry-bushes dear to us from the days of our childhood; for blueberries are everywhere here called huckleberries by the unhappy mortals who have never known the difference between the blueberries of Maine and the sandy abominations sold under their name in the New York markets. But these are the real blueberries, pulpy and juicy and sweet, with the cool, pearly, delicate bloom on the fruit as if frost-fingers had touched them to mark their northern origin. While beneath the trees everywhere grow all varieties of the Pyrola, whose white blossoms now give promise that in autumn their scarlet berries shall chord with October glories, as these berries reflect the blue and gray of summer skies.

Minnewaska, N. Y. *M. H. P.*

New or Little-known Plants.

A New Hybrid Rose.

WE have on many occasions alluded to some hybrid Roses which Mr. Jackson Dawson, of the Arnold Arboretum, had produced by using pollen of various hardy sorts upon the Japanese Rosa multiflora, which is one of the most beautiful of hardy flowering shrubs. One of these hybrids, in which General Jacqueminot was the male parent, was the subject of an illustration in Garden and Forest last year (vol. iv., p. 533). It is a vigorous climber, with clusters of semi-double rose-colored and exceedingly fragrant flowers. We reproduce in this number (see p. 461) a photograph of another of these hybrids, in which the single flowers are pure white, with yellow stamens, and borne in clusters after the manner of the seed parent. They are three times as large as the flowers of Rosa multiflora, and are fragrant. In this case the pollen parent is the Hybrid Perpetual, Miss Hassard, and the plant has the thorns and foliage of this variety and the half-climbing habit of the Japanese species. Miss Hassard is a Rose which was raised from Marguerite de St. Amande, which is a free grower, with sweet-scented flowers. Marguerite de St. Amande is a seedling of Jules Margottin, and this was probably raised from the old and very hardy La Reine, a Rose introduced fifty years ago, and still well known. Roses of the La Reine type endure more cold than any other class except the descendants of Baronne Prévost, and they include such admirable kinds as Anna de Diesbach, François Michelon and Paul Neyron. The new hybrid, therefore, comes of free-growing and hardy parentage, and, if pedigree counts for anything, it ought to prove one of our sturdiest plants. Rosa multiflora, although it has been known for a hundred years, has only in very recent times been introduced to gardens, although its double form crossed with Rosa Indica and others has been the origin of the Miniature Cluster or Polyantha Roses which have long been popular. They are not reliably hardy in this country, however, and we have no doubt that the new strain of Roses which is being raised by mingling the blood of Rosa multiflora with perfectly hardy sorts will produce many plants which will prove satisfactory and useful.

Cypripedium Daisyæ.

THE flower of the Cypripedium reproduced from a photograph on page 463 is from the collection of Mr. H. Graves, of Orange, New Jersey, after whose daughter the plant has been named. It is a hybrid between C. Lowii and C. œnanthum superbum. The leaves are eight inches long and one and a half broad, bright green and faintly tessellated. The flower-scape is sixteen or more inches long, brown, pubescent, one to three flowered. The sepals are white, pale green through the centre, veined and tinted with carmine, with a few dots of brown at the base, the dorsal one being slightly deepest in color. The petals are long, narrow at base, the inner half a primrose-yellow warted with purple, the outer half carmine. The lip is similar in shape to that of C.

Lowii, being brown, shaded vinous red, paler veined green beneath. The infolded lobes are speckled crimson, and the obcordate staminode is carmine and pale green.

Foreign Correspondence.

London Letter.

OUR garden and flower shows were never brighter in September, though the first frost may deprive us of the Dahlias and of the Begonias, which are being quite generally relied upon for autumn color after the Pelargoniums have grown rank and flowerless. The exhibition of the Royal Horticultural Society at Westminster on Tuesday was of unusual interest. Besides an extensive collection of brilliant exhibits there were a large number of novelties, especially in florists' flowers and Orchids. The chief interest was centred in the new hybrid Orchids, exhibited for the first time. Messrs. Veitch, of Chelsea, took a first-class certificate for a beautiful little hybrid, a cross between the scarlet Sophronitis grandiflora and Lælia elegans, this being the pollen parent. It is named Sophro-Cattleya Veitchii, and in growth is intermediate between the parents, but with larger flowers than Sophro-Cattleya Batemanniana, being three inches across. The color of the sepals and petals is a bright cinnabar-red, flushed with rose, and of the pointed lip, a rich crimson, with bright yellow interior. It is a plant sure to be valued by orchidists. The other hybrids were Cypripedium H. Ballantine, between the elegant C. Fairieanum and C. purpuratum, partaking of the character of both, and as rich in color as C. purpuratum. Lælio-Cattleya Proserpine is a cross between C. velutina and L. pumila Dayana, and, though interesting, is not so beautiful as many other hybrid Cattleyas. Messrs. Sander,

Fig. 78.—A New Hybrid Rose.—See page 460.

of St. Albans, sent some extremely choice exhibits, the cream of which was a new Cattleya, supposed to be a natural hybrid, but which looks like a variation from C. aurea. The flowers are of the same shape, though larger than C. aurea, with a broad, spreading, shallow labellum of a splendid amethyst-purple netted with gold, and broad sepals and petals of a delicate blush-white. It is one of the most beautiful Cattleyas I have yet seen. It is named C. Oweniana. It won a first-class certificate, as did also another Cattleya, from Mr. Lee, a Manchester amateur. This was a snow-white variety of C. speciosissima, and was named Sanderiana. The flower is very large, of faultless shape, and a pure white throughout with the exception of a blotch of lemon-yellow in the throat. In striking contrast was a group of the vivid scarlet Habenaria militaris, from Sir Trevor Lawrence. This is a small-growing terrestrial Orchid with long spotted leaves and erect spikes of flowers with trifid labella. No other Orchid that I know, except a grandiflora, has such a glowing color as this.

Messrs. Linden showed the new Ærides Augustianum, with long and dense spikes of small flowers of a pale rose-pink color. This was considered worthy of an award of merit. From Brussels also came some distinct and fine varieties of Cattleya Acklandiæ; maxima, with a very broad lip, and guttata, with heavily spotted sepals, being the finest. Baron Schrœder sent a fine erect spike of the new hybrid Phajus maculato-grandifolius, raised by Messrs. Veitch. It is among the finest of yellow Orchids, the color of the large flowers being a bright canary-yellow, with lips of chestnut-brown. A large group of Dendrobium Phalænopsis, some having spikes carrying two dozen flowers, showed how finely this splendid Orchid can be grown by amateurs who understand the peculiar treatment it likes. Vanda Sanderiana, the unique V. cœrulea, helped to swell the Orchid display, as did also a pretty group of V. Kimballiana from Messrs. Low. This has become an established favorite among orchidists here, as it has no doubt in America. A large number of hybrid Cypripediums were shown, but these are becoming so numerous and so much like each other that it is impossible to describe their peculiar characteristics. Some hybrid Cypripedia are distinct and handsome, but in many instances these hybrids are much less beautiful than their parents.

Some deliberation was required by the Floral Committee in certificating varieties of Gladioli and Dahlias, the novelties being so nearly like the older sorts. Among hundreds of spikes of Messrs. Kelway's Gladioli, which made a splendid array, only two were found worthy of a special certificate. These were Numa, a massive spike of white flaked with rose and tinged with yellow, and Poetis, blush-white, flaked with rose and yellow. Messrs. Kelway seem to have reached the climax with the Gandavensis Gladioli, but it is said that there will soon be some startling novelties from intercrossing their strain with Lemoine's hardier race, which has, moreover, a greater range and stronger contrasts of rich colors, which have gained for them the popular name of Butterfly Gladioli. Among the new Dahlias the most remarkable were those from the famous growers at Salisbury, the Messrs. Keynes. These were all of the true Cactus-flowered class, like the original Cactus Dahlia Juarezi, not the spurious Cactus Dahlias that have been sent out of late years. Of the several shown four were selected for certificates: Mrs. Bashan, pink, flushed with yellow; Kaiserin, pure chrome-yellow; Countess of Radnor, pink, tinged with warm yellow, and Bertha Mawley, bright scarlet. These are all first-rate in every respect.

Of the new Burmese Lily (formerly called Lilium Wallichianum superbum, now named L. sulphureum by Mr. Barker) Messrs. Low had a magnificent group, which showed what a noble Lily this is for decorative effect. The plants ranged from three to five feet high, and each bore from three to five enormous trumpet-shaped flowers of a rich yellow and white. It is not only a fine greenhouse Lily, but proves suitable for outdoor culture in summer. Messrs. Pitcher & Manda sent a fine lot of Lilies, and remarkable types of the red-striped L. auratum (Rubro vittatum), which has this year been admirable in the open air at Kew. It is a Lily that attracts everybody, and the finest forms of it are scarcely inferior to the famous L. Parkmanni, a glimpse of which we have in flower yearly from Mr. Waterer, at Knap Hill, where it is propagating itself slowly.

That very fine Canna, the Star of '91, won a first-class certificate, though it was an argued point among the committee as to whether it was as fine as Madame Crozy, but as it was considered by the majority to be quite distinct in color it was voted the award. There was a hybrid Passiflora between P. racemosa and P. quadrangularis, which, though interesting, has not much floral merit. A pretty plant was a new seedling Tacsonia named Smythiana, with scarlet flowers, which we may hear more of later on. Messrs. Veitch had specimens of the hardy Clerodendron trichotomum, which, however, did not seem to attract the committee, though it was admitted that every hardy shrub flowering in September was a welcome addition. They also had a fine basket of Bignonia grandiflora from the open air, which indicates the favorable warm summer we have had.

Kew. *W. Goldring.*

Cultural Department.

Hardy Lilies.

THE list of Lilies that may be called perfectly hardy is a fairly large one, even after eliminating those that may possibly flower once and then disappear. Among these latter class are many very beautiful varieties, including several northwestern American species, such as Lilium parvum, L. rubescens and L. maritimum, three species with small bulbs and of dwarf habit which dwindle away under cultivation, even though most tenderly cared for. L. Columbianum, L. Humboldtii and L. Washingtonianum are tall-growing kinds in their native Sierras, and the two last-named produce immense bulbs which often lie dormant a whole year only to put forth a feeble stem that rarely flowers here in the eastern states. Deep planting has been recommended for these Californian Lilies, but it does not make them thrive; indeed, it is necessary to plant them at least twelve inches deep to prevent their premature appearance above the ground where they are cut off by late frosts in spring. Evidently there are some necessary conditions which we do not comprehend or cannot give, to make such lovely plants at home here. For the amateur, therefore, it is safe advice to plant very few of the six kinds named above. Of other Lilies that I have hitherto failed to keep, L. tenuifolium, a Siberian species, flowers once and then dies, though it is the easiest of all Lilies to raise from seed, but L. pomponium is so much superior to it in every way that it need not be further considered. L. Pyrenaicum, which should be perfectly hardy here, has always failed with me, the bulbs decaying at their base and eventually disappearing, but at its best L. Pyrenaicum would be an undesirable kind to many on account of its heavy odor. L. Martagon, the typical Turks-cap Lily, with its white variety and the so-called black variety, Dalmaticum, are sometimes grown successfully in the United States, though I have never managed to keep them. It is said that they prefer a poor, stony soil. If they could be grown, the three kinds of L. Martagon would form an interesting group, and they flower early in the year. It is dismal work to have to record so many impossibilities, but it must be remembered that I am simply recording my own experience. Other persons may succeed with them, but it would be safe advice to novices to make trials of other kinds in preference at the outset. It is with a sigh that I include L. Szovitsianum with the foregoing, for, to my mind, it is the most beautiful of all Lilies, though not the most gorgeous, but the beautiful canary-yellow flowers with their deep red base never greeted my eyes but once. Their beauty is not forgotten, nor can I forget that out of a dozen bulbs but one flowered, and that was the first year after planting. The next year no bulbs were there to flower.

And now, as we consider the kinds that may be planted with hope, it must be remembered at the beginning that it is difficult to state just when they flower, because, in every locality the time would vary. L. Hansoni with me has always flowered first, and it is a beautful Lily; the petals are thick, almost leather-like in texture, bright orange-yellow, with red spots; the plant is vigorous and free-blooming. L. pomponium, as stated before, should be in every garden, instead of L. tenui-

folium, because its flowers are of the same bright orange-red, and there are many on a stem varying in number with vigor of the plant. The flowers appear early, too, and are pleasantly fragrant. L. croceum is the old-fashioned orange Lily, and is a good kind to plant where a permanent group is wanted. It is usually about three feet high when in bloom with umbels of erect orange-red flowers. L. elegans is similar in habit but not so tall when fully developed; the flowers are similar in color but vary in different varieties, of which there are many in catalogues, but the mixed bulbs, as grown by the Dutch, give a pleasing range of color and are exceedingly cheap—in Holland. It should be stated that L. elegans is often grown under the name of L. Thunbergianum, but L. elegans is the older name. The dwarf habit of this species makes it valuable for margins of Lily-beds or borders where shrubs are planted. All are familiar with L. candidum, the Madonna Lily; it is perfectly hardy, but we grow it in pots, the same bulbs year after year, for piazza decoration in summer, and the bulbs improve in size. They are rested after flowering and repotted in July, just before growth commences, for in fall this species has green leaves all winter. L. Harrisii, the Easter Lily, and L. longiflorum are both hardy in sheltered situations with a covering of leaves in winter. The tendency with these two kinds is to start to grow the first year in fall, but after a year or two they forget all about it and come on naturally in spring. The Tiger Lilies are well known as hardy, but the older variety should only be grown to complete a collection, as the kind known as L. tigrinum splendens is so much superior to it. The double variety is good for its durability when in bloom, though many do not admire the double flowers. L. excelsum of catalogues, more correctly L. testaceum, has flowers of a different color from that of any other Lily. This is a light brown or buff, and it is very distinct and ornamental. This Lily should always be planted in a collection, though it sometimes deteriorates in rich soil. In habit the plant resembles L. candidum. L. Chalcedonicum, the scarlet Turk's-cap Lily, is a native of Greece and is somewhat tender, but in favored localities it should succeed and produce its bright scarlet flowers freely enough.

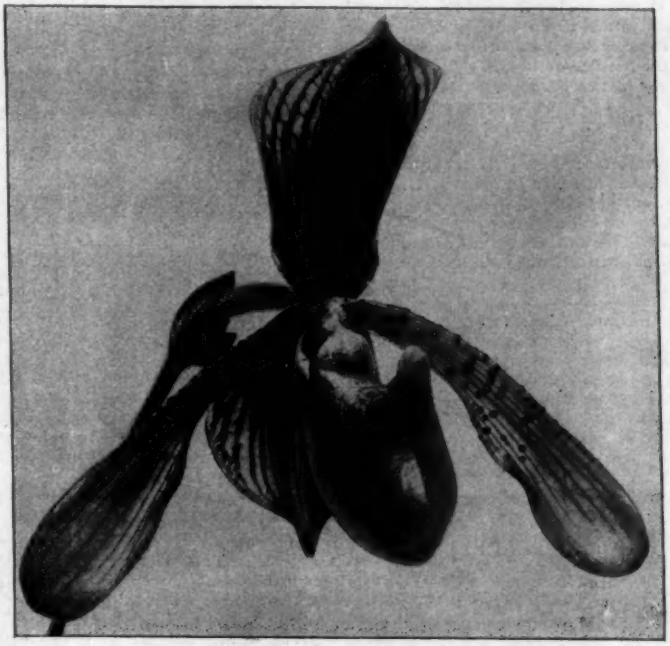

Fig. 79.—Cypripedium Daisyæ.—See page 460.

Of the Japan Lilies, L. auratum is, perhaps, the best known, and little needs to be said of it except that I never knew any one to grow the same bulbs long in such health and strength as we receive them in from Japan. The bulbs are cheap, however, and are sure to pay for themselves the first year after planting. There are many varieties of L. speciosum (often called L. lancifolium), but the best kind is that known as Rubrum, which we get from Japan direct, the Dutch variety being much inferior to it in color, and may be considered as being the typical L. speciosum. Of white-flowered forms, Album præcox is the best, because it always flowers early. The old white kind flowers later, and is sometimes killed by frost while in bud. This section of the Lily family includes varieties among the handsomest of the genus. They are perfectly hardy, increase under cultivation, and are indispensable to the hardy-flower garden. There are other varieties of L. speciosum which are but slight variations from the two named, which are the best of the section. L. Batemannæ should be named in connection with L. tigrinum, which it resembles closely, except that the flowers are not spotted, but are of a clear apricot color, and desirable for that reason. The dwarf L. Wallacei has also flowers of a similar color, but does not exceed eighteen inches in height. By some it is considered but a variety of L. elegans. The bulbs are always small, but they usually flower freely and increase rapidly. L. Browni is a rare variety, with flowers similar in shape to L. Harrisii, but larger, white inside, and purplish brown outside the petals. It is exceedingly fragrant, hardy, but rather expensive, but when once planted in suitable soil does not die out. L. Krameri is a species possessing a refined beauty peculiar to itself, the flowers being of a delicate rosy pink, and borne usually one on a slender stalk. This kind requires careful nursing to induce it to do well, but it is possible to grow and flower it in sheltered positions.

Lilium pardalinum is the only native western Lily that will thrive in the east, but it grows so cheerfully and luxuriantly that it really seems to be making an honest effort to atone for the bad behavior of its companions of the Sierra Nevada. With us it is as free as L. superbum, which it resembles strongly, although it flowers earlier. All of the species found in the eastern states, L. Canadense and its varieties, Rubrum and Flavum, L. superbum and L. Philadelphicum thrive well when planted in the garden, but the last-named should be planted in a dry soil not more than three inches deep. When planted the usual depth L. Philadelphicum will surely perish. Of the noble Himalayan L. giganteum, I cannot record any success, and have never seen it in bloom, but Mr. Ellwanger's experience with it, as recorded in GARDEN AND FOREST, ought to encourage others, now that we know it can be grown. The bulbs are very large, and often remain dormant a year after planting, but should start to grow the second year, although with me they did not. Of another East Indian Lily, L. Wallichianum superbum, usually considered tender, it is worthy of remark that last June, in Mr. Hunnewell's gardens at Wellesley, I saw a clump that had been outdoors in the open ground all winter, and the growth was vigorous, and promised well for bloom. If Wallich's Lily proves hardy it will be a great addition to the Lily-border, for, under pot-culture, it usually languishes. This and its first cost has had much to do with its rarity in gardens.

Lilies generally do not require a rich soil, in the usual acceptation of the phrase, but a soil rich in decayed vegetable matter is eminently suitable. Hence a compost of good loam and decayed leaf-mould made porous is what is desired. There are some kinds, such as L. tigrinum, L. speciosum, L. candidum and L. Harrisii, that like manure both in the soil and in the water given, but these are the most vigorous of all Lilies, and the same would not suit any of the more delicate species. The depth to plant Lilies should vary with the size of the matured bulbs. All the larger kinds may be planted the depth of the spade, about nine or ten inches, bearing in mind that the roots that do the most of the work are produced up the stalk between the bulb and surface of the sod, and if the bulb rests on the subsoil it does not matter, so long as the top soil is right. When manure is applied to the soil the bulbs should first be covered with soil free from it, or decay may be brought on by contact. The richer soil should be used for the stem-roots to feed upon. The ideal position for a Lily-bed is among Rhododendrons. Where these will thrive the Lilies will, the taller kinds being used to come up through them, and the dwarfer ones near the margin of the beds. The leaves used to mulch the Rhododendrons in winter are a fine protection for the Lily-bulbs, and afford when decayed all the needful fertilizer, while the shrubs shade the surface of the soil and keep it cool and moist in summer, which is a great advantage. A bare surface soil, which radiates heat in hot weather, turns many of the leaves of Lilies yellow, and causes premature ripening of the stems. In common with all other cultivated plants, the Lily has a disease of its own. Some collections, to

my knowledge, have been completely exterminated by its ravages. It attacked our Lilies this season. It remains to be seen what the results will be next year. Rusty yellow patches on the stems and leaves tell of the work going on, and soon the stalk dies off, and the bulb is weakened for next year. I have had no opportunity for comparison, but the symptoms are unmistakable. Apart from this disease, there is no reason why we do not see more Lilies grown in gardens. Enough are forced in one year for Easter to plant bulbs in every garden in the United States, and yet how seldom do we see this family represented, except, perhaps, by a clump of Tiger-lilies that have been undisturbed for a generation, and yet live to flower and plead for attention and encouragement.

South Lancaster, Mass. *E. O. Orpet.*

Autumn-blooming Perennial Plants.

CHRYSANTHEMUMS have absorbed so large a portion of the attention of gardeners in recent years that other autumn-flowering perennials have suffered some neglect, and Chrysanthemums are rapidly becoming plants for the greenhouse exclusively. The early sorts give little promise of being out-of-door bloomers, if one may judge from a large collection of the new French strains seen a few days since, which seemed scarcely as forward as the old Madame Desgranges. For a garden of narrow limits the selection of plants for flowers at this season requires more care than for those of spring and summer, as at this time many plants are apt to become rank in growth—weedy, in fact. In selecting plants for conspicuous positions care should be given to obtain those with good foliage, as the weather is at this time very trying to all leaves. The popular Sunflowers are usually quite defective in this respect, and quickly become unsightly. For a suitable position, however, they are, of course, among the attractive flowers of the season. An excellent succession of these is Helianthus rigidus, the double-flowered H. multiflorus, H. lætiflorus, H. orgyalis and H. Maximiliani, the two latter being especially graceful in foliage, and H. Maximiliani is in flower long after the first frosts.

Of the more modest flowers of the season, Anemone Japonica alba is easily the most charming, and is usually entirely satisfactory if the position is somewhat moist and not too open. Delphinium Sinense seems to me scarcely less beautiful in either of its three colors, white, pink and a heavenly blue. It has a very neat habit, of moderate growth and a long season of bloom. Messrs. Pitcher & Manda had it in flower in November last year in the open nursery. This species should be very popular when better known. The autumnal Monk's-hood (Aconitum autumnale) is a plant of very trim habit, two to three feet high, with glistening dark green leaves and abundant large hooded flowers of a pleasing purple. Stokesia cyanea has flowers of a lighter purple, like a full-petaled single Aster, though the foliage is not specially attractive. This plant is probably not hardy here without some protection, which is also a drawback to the cultivation of the Torch-lilies, or Kniphofias, which have been so much improved, especially by Herr Max Leichtlin, in recent years. There seem about two-score varieties available, these varying in habit and coloring of flowers; few are hardy without protection from wet and severest frost. No good garden is complete without some varieties of these plants, ornamental in foliage and flower. Of the most common varieties K. corallina is most likely to give general satisfaction. It is a dwarf kind, of very thrifty growth, and gives a succession of bright torches until frost. They winter without harm in a frame or cellar.

Pyrethrum uliginosum, with its Chrysanthemum-like habit and white daisy-like flowers, is now in season, and likely to prove satisfactory. It should have a sheltered place, where wind will not thresh the fair flowers, which are thin of petal. Another fall daisy is Chrysanthemum lacustre, a plant of coarser habit, proof against severe weather, and somewhat of the wildling order. The best composites of the season are the perennial Asters, the varieties of which are so plentiful in our American fields at this season. No plants are more satisfactory in the garden than the best of the Asters, with their bright multitude of flowers. A standard collection of the family, correctly named, in some one of our botanic gardens would be of real interest. At present it is practically impossible to secure even a small collection from two nurserymen which shall be named alike. Were there more room in my garden I think probably there would be added some fine forms of Golden-rod, full as the fields are of them. Solidago cæsia, with long wand-like stems and clustered axillary flowers, seems to be the perfection of grace and brightness.

A sowing of Iceland Poppies made early in the year is now flowering freely and vieing with the brightest flowers in the garden. Scarcely less bright is the well-known Plumbago Larpente, with its blue flowers and foliage, which is taking on bright autumnal tints. Sedum spectabile adds color in spots which prove too dry for other plants. Gaillardia grandiflora is, perhaps, not strictly a fall flower, but nothing but a hard frost will give a pause to its floral succession. Among bulbous plants, the flowers of the season are from varieties of Colchicum, Crocuses and Cyclamen. Cyclamen Europœum album, now showing pure white flowers, would be much more attractive with leaves, but at present there are none. Cyclamens are difficult bulbs to establish in the open, and I have not yet discovered why they live through one winter and are pulped the next. The garden is made interesting and expensive by these little experiments. Plants with magenta-colored flowers are not long-lived in my garden, but it seems worth while to make an exception in favor of Lespedeza Sieboldi, which has such a graceful habit, with its pendulous branches covered at this time with a myriad of pea-shaped flowers. Roses give such a plentiful daily crop of buds at this season that it seems ungrateful in talking of hardy plants not to mention them, though what I know of them may be summed up very shortly. A man may have Roses in his heart, as the well-known saying goes, but if he wants them in his garden he must set his plants in a good, deep compost (two feet not being too much), rich with manure and bone-meal. Gloire de Dijon and La France, both of which are hardy with me with no protection, give decidedly more flowers than other varieties which have been grown here.

With all its wealth of showy flowers the September garden seems to me the least interesting one of the year. Crops are a mere detail, not always essential to the enjoyment of a plant. Human beings, as children, are often more interesting to their guardians, filled as they are with wonderful potentialities, than when in full development of maturity. And plants, new or old, in their early growth give pleasurable anticipations which are not always realized. Again, we are in this latitude never free from danger of killing frosts after this date, and garden operations must be shaped with this contingency in view. Then around us is the glamour of the glorious American autumn, tinging the fields and ripening leaves with a wealth of colors overpowering the brightest garden. Seen under a declining sun at this season our Jersey meadows show broad, harmonious and exquisite shadings of color which no expert in bedding-out can hope to rival. When one has perceptions open to these impressions the mere enclosed garden is at this season rather commonplace.

Elizabeth, N. J. *J. N. Gerard.*

Cool-house Ferns.

AMONG the many fine Ferns that may be successfully grown in a cool-house, that is, in a temperature forty-five to fifty degrees during the winter, there are few superior to Hypolepis distans, an evergreen of much elegance and free growth. This Fern makes a mass of dark green bipinnate fronds about a foot in length; these are finely divided and serrated and thrown up from a creeping rhizome. Like many other Ferns of creeping habit, this species does not require a great depth of soil, and pan culture is therefore advisable. Planted out on a rock-work it is equally at home.

Pteris scaberula is a fine companion plant for Hypolepis distans, and thrives under similar conditions. The fronds of this species are also finely cut, lanceolate in general outline and light green in color, and they are produced from slender rhizomes. This admirable Fern is partly deciduous, and is, consequently, likely to become rather rusty-looking during late winter and early spring. But the beauty of the young growth fully repays for any previous shabbiness, and it is well worth a place in any conservatory.

An unusually pretty Fern, and also an uncommon one, is Athyrium Goringianum pictum, a variety introduced from Japan some years ago. It has long pendulous fronds, the stems of which are pinkish or red, and the pinnæ on each side of the midrib are variegated with a lighter shade of green, thus making a light stripe down the centre of each leaf. This variety will grow nicely in light loam, if proper attention is paid to the drainage of the pots. The plant is entirely deciduous, and should be stored away under a bench when the fronds die down and watered often enough to keep the soil moist.

Adiantum Capillus-veneris magnificum is one of the best forms of the common Maidenhair, and can be grown into a very pretty specimen, besides having good lasting qualities when used in cut-flower work. This variety has particularly arge pinnæ, possibly the largest in the Capillus-veneris sec-

tion, and the fronds are gracefully arched. Todea Africana is another very fine cool-house species. It makes a short, stout trunk as the plant attains age, from which are thrown up large bipinnate fronds. These are of strong texture and the pinnules deeply serrated on the margin, the surface of the fronds being dark green and glossy. It makes a particularly handsome specimen when well grown. It is a strong rooting species and requires an abundance of water to keep it in good condition.

Cyrtomium falcatum is one of the brightest-looking Ferns in a collection; its pinnate fronds have a fresh green color and a high gloss. It is almost hardy, and is quite so in many parts of England, where it is much used for planting in outdoor ferneries, though under such conditions it is almost deciduous, while it retains its foliage in good condition during the winter when grown under glass. C. caryotidum is similar to C. falcatum in form, but is very different in color. The fronds are much lighter and they are also thinner in texture, and it is less glossy. It is not as hardy, but makes a pretty plant and is readily raised from spores. Brainea insignis is a very handsome Chinese species of moderate growth and arborescent habit; the pinnate fronds reach a length of two and a half to three feet. The pinnæ are lanceolate in shape, with serrated edges, and the young fronds are pinkish, gradually turning to bronze and later to green. Brainea is a monotypic genus and continues somewhat rare, though a noticeably handsome species.

Among the smaller Ferns, several of the Pellæas are excellent; they are useful for pot or basket culture or for planting in a rockery. P. rotundifolia is good, the nearly round pinnæ strung along each side of the dark brown rachis having a very light and graceful effect; a native species from the far west, P. bella, is also beautiful, growing to a height of six or eight inches only. Other members of this genus valuable for the cool-house are P. calomelanos, P. brachyptera and P. flexuosa.

Holmesburg, Pa. *W. H. Taplin.*

Tomato Diseases.

TOMATO plants have been troubled with fungi this season, and consumers are complaining of the high price and poor quality of the fruit, while the tomato growers are lamenting the short crop. In some localities the young plants were destroyed or much weakened by the bacterial disease known as the Southern Tomato Blight. This has been followed by the old leaf-enemy, Cladosporium fulvum, which produces a light brown, almost olive, mold upon the under side of the foliage. Plants with much of this fungus usually bear inferior fruit, and frequently the same enemy appears upon the fruit while it is green and less than half-grown; the blossom end turns brown and decay sets in.

The newest enemy, and one of no small importance, is an anthracnose, Colletotrichum Lycopersici, which was first observed by Professor Chester, at the Delaware Experiment Station, last season, and described by him in the *Torrey Bulletin* for last December. This fungus produces sunken spots in the fruit, which become soft and dark. It quickly destroys the Tomato, and for this reason and by its peculiar appearance it is usually recognized as different from any other known Tomato rot. Several times my attention has been called to the ravages of this parasite by growers who observed that it was a new enemy.

The same fungus is to be found upon the foliage, when it causes brown, irregular spots. At this time, when the fruit is well advanced and frosts are expected daily, there is little or nothing to be done, except to see that the vines are finally gathered and burned. There is no question about the contagiousness of the anthracnose. The spores are numerous, and should be destroyed at the close of the season, if not before.

Rutgers College. *Byron D. Halsted.*

Hardy Cyclamens.

MR. EDWARD WHITTALL, writing to the *Mayflower* on the Cyclamens of Asia Minor, says:

The Cyclamen is another plant which has proved of interest to me as a collector. A few years back I believed that it was represented in Asia Minor by C. Europœum alone and I was accordingly well pleased to find that many varieties existed. C. Europœum, as I have no doubt your readers well know, blooms before any of its beautiful ivy-like leaves appear above ground. All the hedges around Smyrna are full of it, and with the first dews of September its pretty pink-white flowers appear to remind us that autumn is nigh and we have done once again with our hot, dry summer. If we could cap the remarkably beautiful foliage of C. Europœum with its numerous and large blooms, what a pretty plant would be the result.

On the sea-coast between the promontory opposite the Island of Chios and the headlands opposite that of Rhodes, I found what I believe must be C. macropus. The foliage of this variety, though not so massive as the first-mentioned, is prettily marbled, in some cases almost silver-white, which, joined to numerous and pretty pink-white flowers, makes of it an acceptable plant for house-decoration from December to March. It has, therefore, the merit of being easily bloomed a month or so before the beautiful English hybrids now so much under cultivation. This variety is called in Smyrna the large Rhodian, as it was first brought from that island, where it grows abundantly.

Following up this clue, one of my men came across what I should say is C. Ibericum, at the foot of the Anti Taurus, Boulghar dagh and Allah dagh ranges, a few miles from the town of Adana. The leaves of this plant are smaller and not so pretty as in the large Rhodian, but the blooms, which are purple-crimson, with a very dark eye, make it a good acquisition. It flowers in March.

My prettiest finds, however, date from 1891, viz., two dwarf Cyclamens. The first, like C. Europœum, flowers in autumn, throwing up its whitish pink blooms almost before its pretty marbled leaves. The bulbs rarely exceed an inch and a half across, and when taken out of the soil are of a glossy flesh-color, quite distinct from any others of the genus found in these parts. The leaves are small, barely three-fourths of an inch across.

The second dwarf I consider a gem for rockeries. The bulb, like that of the first, is small, even smaller, flesh-colored and glossy. The leaves are prettily marbled, and more delicate than in the first. They grow so thickly on the plant that in the numerous specimens I grew this year I had not one plant in which the foliage measured more than four inches in diameter. This was surmounted by a numerous set of very large blooms, as compared to the foliage, of a dark red or purple with an almost black eye. I have seen Coum and other dwarf varieties, but I believe none come up to this miniature Cyclamen, either in size or floriferousness. Both these dwarfs were found on the western spurs of the Taurus, above the towns of Adalia (the ancient Attalia) and Phœnicia, and as they were discovered peering out of the snow at an altitude of 3,000 to 4,000 feet they will probably prove hardy.

Correspondence.

Early Autumn near Cape Cod.

To the Editor of GARDEN AND FOREST:

Sir,—I should much rather write myself down as living on Cape Cod than near it, for there is a distinctiveness, not to say distinction, in its name, a share in which all its neighbors covet. Every one knows where Cape Cod is, and thinks he knows what it is, although accurate knowledge on this latter point is, as a fact, extremely rare, while to say that one lives on the western shore of Buzzard's Bay conveys a very vague idea to most persons of other than New England birth.

However, though we are only three miles to the westward of the Wareham River, on the eastern bank of which Cape Cod begins, no one worthy to speak to the readers of GARDEN AND FOREST could claim to belong to "the Cape." For its nominal beginning is a true geographical beginning, and this means a distinct botanical beginning, or, more exactly, a distinct botanical leaving off. Everything that grows on Cape Cod grows here, from Cranberries to Pitch Pines. But many things grow here which do not grow beyond the Wareham River—White Pines, for instance, in profusion. And many other things flourish here which just cling to existence there, so that the whole aspect of our woodlands and road-sides is different; and as one drives still further to the westward, the difference grows ever more strongly accentuated, so that even five or six miles from the shores of the bay one can hardly believe that the sandy, heathy, boggy, rough-and-tumble stretch of the Cape country is covered by the same sky which covers these verdant rolling meadows, the sturdy Oaks and Maples and White Pines of the woodland, and the great Poplars and Locusts by the cottage-doors.

So, we think, we are repaid for not belonging to the Cape by the variety which our daily excursions can compass. The Cape is delightful, but it is all of a piece, and those who live on it cannot easily go elsewhere. But we can go to the Cape after dinner and be back to tea, and the next day can go to our pas-

toral inland country in an equally brief space of time. Nor do we always think that we must go far in either direction, for even the roads nearest about us offer perpetual variety, now crossing salt-marshes and causeways over rippling arms of water; now threading tall Pine-groves, and now Oak-thickets, to bring us out on modest elevations, which we are pleased to call cliffs, where, suddenly, the wide azure expanse of the bay is seen beneath our feet; now taking us between hay-fields and small fruit-farms, where the houses are prettily gray or white and the barns are bigger than the houses; and, again, leading us through miles of narrow roads, where woods of some twenty years' growth come close to the carriage-wheels, the boughs meet overhead, and the grass grows tall between the three ruts worn by the never frequent, but never altogether failing passage of the typical vehicles of the country—the shackly, faded buggy and the black-hooded, four-seated carryall, each drawn by its single horse. Two-horse conveyances cannot comfortably penetrate these wood-roads, although for a one-horse vehicle they offer very good driving, the sandy soil of the Cape only appearing here and there in very brief stretches. No visitor should bring his own one-horse vehicle to this part of the world, but should depend upon those he will find awaiting him. Our axles are so wide that an imported carriage does not "track," and the difference between driving in such a one and in one which does track is the difference between entire comfort and an exasperating tilt and joggle.

Of course, it is in the mountain regions of central and northern New England that the colors of the American autumn show in the grandest and most amazing way. But our vegetation "turns" very beautifully; and it reveals its beauty, so to say, in a much more intimate fashion. The finest autumnal features of an inland scene are distant stretches of parti-colored hill-side, tall, broken masses of variegated forest in the middle distances, and, sprinkled about in the nearer meadows, superb single examples of flaming red or yellow or purple trees. But we have no hill-sides; when we see a mass of woods in the middle distance it is low and draws a nearly straight line across the horizon; and, in our most characteristic drives, the trees are small, and one sees them very close at hand, crowded beside us, and their boughs close above our heads. Here and there we get fine open views of meadows and marshes bounded by woodland or sea. But they are all flat views, and, as a rule, there are few isolated large trees. The colors in autumn lie in low far-extending level masses, or, when we thread the forest-roads, strike the eye as a perpetual succession of details, rather than as broad effects. Roads such as these are called, I believe, "green-ribbon roads" in some parts of New England. Ours are certainly ribbon-like, perpetually and gracefully meandering with never the smallest stretch of straightness, and in summer they have a green all their own, for no inland light brings out the keenest emerald tints possible to foliage as does the salt-spangled light of these sea-shore parts. But when we look along them in autumn we feel as though we had put an immense kaleidoscope to our eye, so many are the colors they assume, and so impossibly vivid each one seems.

Of course, it is not in the first half of September, not until October, that, in these mild regions, one sees autumn in a very brilliant guise. But the beginning of the red and yellow season has a special charm of its own. Autumn is setting her palette, trying her effects with little streaks and spots and splashes, indicating what she means to do, sketching in her color-scheme; and every one knows that a great artist's sketches have a peculiar value to the understanding eye. A tricksy and willful sprite is this particular great artist, in those youthful days when her Christian name has not been changed from "Early" to "Late." There seems no reason in her work, although everything she does rhymes delightfully with the next thing. I pity any scientific student who should come to our woods in mid-September, trying to unravel why our foliage "turns." Neither frost, nor sun, nor moisture, nor dryness can be credited with any distinct influence; little can be laid to the account of family traits when tree is compared with tree; nor does soil or situation seem to have a discernible effect upon the gay beginning of the masquerade.

We may say, in a rough sense, that the Tupelos turn first. But some of them turned in August, and some have not yet begun to turn, while some are russet and others are redder than scarlet. And a green one may stand close beside the brightest red one, or one bough may be scarlet while all the others are emerald still. But even the Tupelos are not so individually willful as the Maples. They are all Scarlet Maples by name (the Sugar Maple does not grow with us), but they are not all equally scarlet by nature; or, at least, they do not all reveal this nature at the same time or in the same way. This year they began to enliven themselves unusually early—a week or more ago many of the smaller ones were already vivid. But I have never noted a year when they enlivened themselves in so fragmentary and fantastic a fashion. It is hard, as yet, to find an example which is red all over. I passed a wide swamp the other day which was surrounded by hundreds of them and thickly beset with others, all hardly more than saplings, gracefully tall and slender. Every one of them, I think, showed some brilliant red; but not one of them, as far as I could see, had more than one or two red boughs. It was not as though each tree had assumed a new garment; it was as though each had flung out a bold banner of its own. Often, in the narrow woodland roads, one comes upon a Maple with not a whole bough, but merely the end of a bough flaming; or not the whole end, but just a couple of swinging leaves. In my drive to-day I came upon a good-sized symmetrical specimen, still perfectly fresh and green, with one single scarlet leaf hung out over the roadway; and immediately beyond it was another with only half a leaf tinted, the line between green and red being as neatly drawn as though by a painter's brush. And as the Maples are behaving, just so are the Scarlet Oaks, while their big brothers, the White Oaks, give no sign that they know the summer is past.

Where the roads skirt the salt-marshes splendid effects of color may already be seen, although these are less vivid than those which will soon follow. The marshes (we call them "ma'shes" here, and so, says an English friend, are they called in South Devon) are not orange-colored yet, but they are a fine dullish yellow, streaked with green and brown, and here and there accented by big patches and ribbons of a blood-like deep red. From a distance the plant which gives this remarkable color looks like some species of Salicornia, but I have never been able to get near enough on the yielding soil to see it distinctly. Around these marshes the woods are still chiefly green. No brown tones yet appear, and of yellow tones only the dull neutral tints of the little Birches. But a splash of scarlet shows occasionally where a Maple or Tupelo stands with its foot in the wet.

Where the roads go beneath tall Pine-groves not a sign or symbol of autumn appears. The sparse growths beneath are as freshly verdant as the soft swirling canopy of needles above. But the open roadsides are gay, for we pride ourselves on our variety in shrubs and vines, and these turn early; and, moreover, the Asters and Golden-rods are still at their finest. No withered grayish plumes stand for the Golden-rod yet, but along the shores the thick-leaved maritime species is in perfection, and on drier spots other tall or low paniculated kinds, and the softer, more poetic flat-topped masses of the corymbose species. The Vacciniums, which later will spread a carpet of glory along the roadsides and through the woodland glades, are already, some of them, bronzed and some of them red. Here and there a Clethra has turned bronze-like too. Once in a while we come upon a little Sassafras whose mitten-like leaves are yellow and red in spots like a particularly speckled apple. Now and then, like a flash of flame, a thin garland of Virginia Creeper encircles a Pine-tree trunk; near it flaunts a mass of Poison Ivy, and, further on, a streamer of Smilax tries to make us believe it is a Virginia Creeper too. Sometimes, lying low beside the road, beneath an arboreal canopy still entirely green, there is a mass of varied tangled color enchanting to behold; and, again, the undergrowth is as green as the trees, except for tiny spikes and spots of russet and scarlet.

The eye which can appreciate accents as well as broad effects, which loves details as well as masses, and which can be delighted by a little colored leaf as well as by a huge colored tree, finds infinite satisfaction in our country in these early autumn days. And what a sky covers this diversified panorama of simple beauties! People who live among the hills must do without real horizons. They never know what it is to see the edge of their world in every direction, and to know what the sun's rays are about in all quarters of the sky. They never see a sunset as we see it here all around the margin of the heavens. This is particularly the month for sunsets, and we usually have four of them every night. There will be a crimson one flaring in the west and a rosy one blushing in the east; one with masses of dark purple clouds lying over a purple sea to the southward, and a colder, purer, even more enchanting one in the north, pale green as to its sky, palest lavender as to its clouds. No mountain region can do this for you, and you must come to our individual little corner of the world, just under the heel of Cape Cod, to know exactly what you miss by living in the mountain.

Marion, Mass. *M. G. Van Rensselaer.*

Scab-proof Apples.

To the Editor of GARDEN AND FOREST:

Sir,—In the line of Professor Bailey's statements (p. 442) it is deplorably true that in Wisconsin this season none of our market apples are without injury from scab. Never were prospects finer at blooming-time for a bountiful harvest of apples than last spring, but in the latter part of June, the scab fungus, stimulated no doubt by the cool, wet weather, spread over our orchards in a surprisingly short time, causing almost a total ruin of the prospective crop. The few apples that remained on the trees are so badly scabbed that not many of the samples shown at the state fair this year were unblemished.

But in this season of almost omnipresent scab, Mr. George J. Kellogg, of Janesville, Wisconsin, exhibited a well-laden branch of a new seedling Apple, which, though grown in an orchard in which the profuse bloom of last spring was almost completely blasted by the scourge, had developed a fine crop of apples that were as free from scab-marks as if no germs of this disease had ever alighted upon them—a pleasing evidence that scab-proof apples may not be among the impossibilities.

The "squirt-gun" has, no doubt, come to stay, but I have little hope that in seasons when we most need its help, that is when profuse showers are frequent in the month of June, it will ever be able to give us fair fruit. We must supplement it by systematic breeding from scab-resistant varieties before we shall escape damage from this most serious scourge of the orchard.

University of Wisconsin. *E. S. Goff.*

Recent Publications.

Garden Design and Architects' Gardens. By W. Robinson, F. L. S. London: John Murray, 1892.

The illustrations in this little book are in themselves of sufficient interest and value to justify its publication, and the author himself seems to consider them the essential part of the work, if we are to judge from the sub-title, which states that it is his purpose "to show, by actual examples from British gardens, that clipping and aligning trees to make them 'harmonize' with architecture is barbarous, needless and inartistic." A proposition of this sort needs little argument to substantiate it, and little argument will the reader find. Mr. Robinson's work, in form, is principally a review of *The Formal Garden in England*, by Bromfield and Thomas, with a short additional criticism of Seddings' *Garden Craft, Old and New*. In reality it is an impassioned protest against some of the false doctrine of these two works—and plenty of false doctrine do they set forth.

The first of these books has been already reviewed in these columns. It is rather an attractive little treatise, and, begging Mr. Robinson's pardon, it contains many pretty and interesting pictures. The authors have our sympathy, too, so far as they show a preference for old-fashioned, geometrical planting over much of the formless fussiness of many modern gardens. The fundamental error of the authors is, that they appear never to have seen a good example of grounds that have been treated "naturally" and at the same time artistically, or if they have seen such places they do not appreciate their beauty. Indeed, there is nothing in the book to show that the authors have any feeling for natural beauty or any intelligent appreciation of scenery. It is charitable to assume that they are quite destitute of the original faculty to which the beauty of scenery appeals, and the mistakes of their book are exactly of the kind which would be made by a man with no ear for music, if he should write a criticism of Beethoven's Fifth Symphony. The lack of this special sense will account for the assertion that landscape-gardening is essentially the abandonment of everything like design. They can see no "order" or "balance" except in the repetition of architectural lines and angles. It is not strange, therefore, that they should fall back on etymology and insist that the essential feature of a garden should be a strong boundary line.

Mr. Robinson's pictures need no additional text to show how delightful to the eye the so-called natural style of planting can be made, even in connection with buildings, whether stately or humble. And the text adds little to the force of the illustrations. Mr. Robinson's language is fervid, and at times perfervid, but a display of feeling does not always aid an argument. As has been already said, however, little argument is needed to demonstrate the errors into which the two young architects fell when they essayed to prove that one kind of garden was essentially good, and all others essentially bad. The fact is, that there are gardens of a good many kinds, and gardens made to fulfill a good many different purposes. Mr. Robinson himself is the able advocate of a garden whose "true use and first reason is to keep and grow plants which are not in our woods, and are mostly from other countries than our own." But, then, there are gardens whose beauty is of the very highest type which were not designed with any such motive.

Bulletin 43 of the Cornell University Experiment Station treats of certain "Troubles of Winter Tomatoes," two of which are so obscure in their ways that growers often fail to recognize them until the crop is ruined. One known as the winter-blight was first described in GARDEN AND FOREST last April (page 175) by Mr. E. G. Lodeman. The disease first appeared in the winter of 1890-91, when only a few plants were affected, and as they had borne one crop it was thought that they were simply worn out. It became necessary, however, to carry a dozen plants over the summer, and these were introduced into the house when the forcing season opened last October. From this stock trouble again spread, and in six or eight weeks it had become serious, and there was no longer any doubt but that a specific disease had to be contended with. The first indication of the trouble is the dwarfing and fading of the leaves and the appearance of ill-defined yellowish spots, which soon become dark and the leaf curls, with its edges drawn downward, so as to give the plant a wilted look. This injury causes the plant to dwindle, fruit-production is lessened, and in some cases the plant dies outright. The indications point to a bacterial origin for the disease, but this is not certain, and no remedy has been found for it as yet. The disease travels from plant to plant when they stand in separate boxes, even when their tops do not touch. Experiments lead to the conclusion that the best treatment for this blight is to remove all diseased plants at once, and if it becomes serious, to remove all the plants and soil in the house and start anew. The experiments, too, emphasize the importance of starting with new plants and fresh soil every autumn. When once the disease gets in a house it seems fatal to success in forcing Tomatoes.

The common blight which is associated with Tomatoes, Cladosporium fulvum, appears as cinnamon-brown spots on the under surface of the leaves. This fungus, however, is rarely serious. It is apt to appear in late winter or early spring, and often not until after the crop is nearly harvested. In such cases the old plants should be burned as soon as the last fruit is off. If it appears earlier, spraying with the ammoniacal carbonate of copper is to be recommended.

Another serious injury of winter Tomatoes is the root-gall which comes from nematodes. Many plants like Geraniums, Coleus, etc., are subject to the attacks of these worms, and the diseased plants or the soil in which they grew is often dumped into the dirt-bin, and thus the trouble is propagated. In the southern states these nematodes are serious enemies to plants in the field and even to trees, but in the north they are confined chiefly to indoor plants. This indicates that the freezing of soil in houses which are attacked would be good treatment. When these worms attack Tomatoes the root is swollen into a shapeless mass which reminds one of the club-root of cabbage. The trouble is likely to be worse in plants which are carried over from one winter to another. In general appearance the injured plants resemble those attacked by the winter-blight except that the leaves are not spotted. The best treatment for this disease is to remove plants and soil, wash the benches and boxes with lye, and begin over again. It would, however, be a great saving of time and expense if the soil could be treated between crops with some material which would destroy the worms. Lye, quicklime and bisulphate of carbon have been tried unsuccessfully, but in boxes of earth which were salted and frozen no worms could be found.

Notes.

In consequence of the growing difficulty of procuring wood suitable for the manufacture of matches, German factories are now making them of compressed peat, which is said to be an excellent substitute.

According to a foreign journal, almonds are now counterfeited as coffee-beans are imitated. The artificial almond is made of glucose; color and form are copied to perfection, and the desired perfume is given by an application of nitro-benzine.

Anjou, in the Department of the Maine and Loire, in France, is a headquarters for the cultivation of medicinal plants. The ground is a slaty schist, and such plants as Belladonna, Camomile, Stramonium and Hyssop flourish well in it, and are grown on a great scale, and, according to an account recently given in *Le Jardin*, of Argenteuil, with large profits to their cultivators.